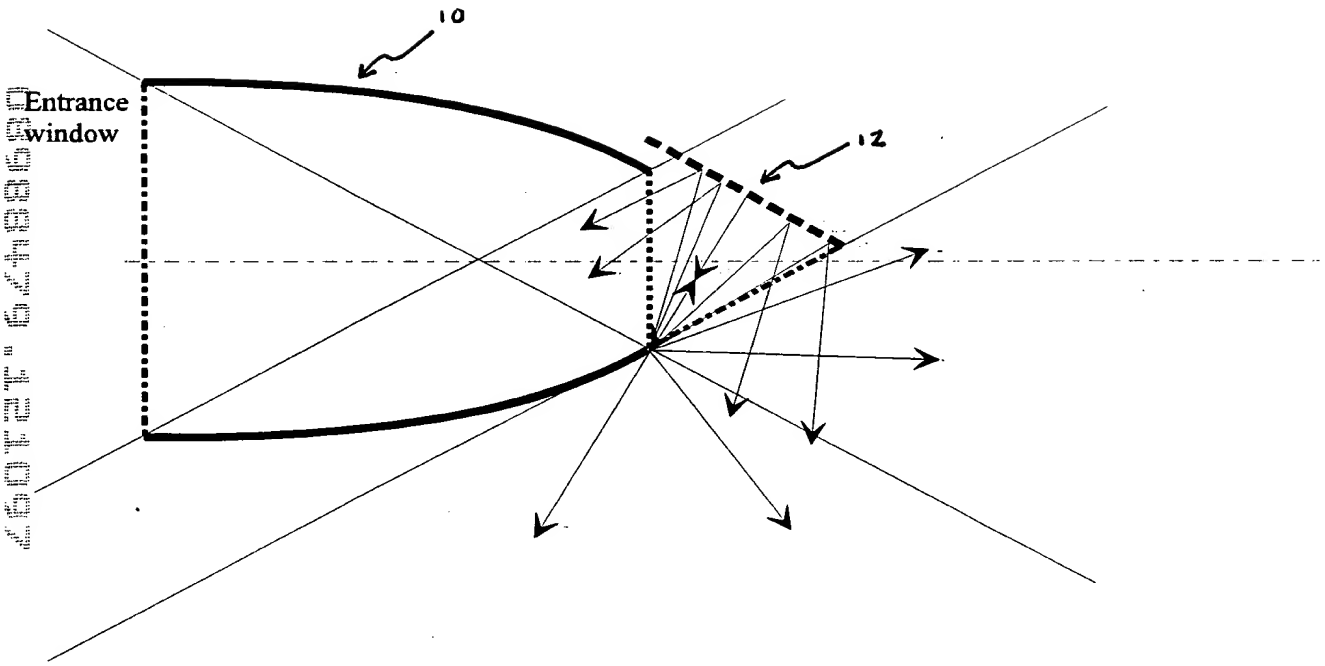


Figure 1. A flat reflector attempts to redirect the output of a CPC.

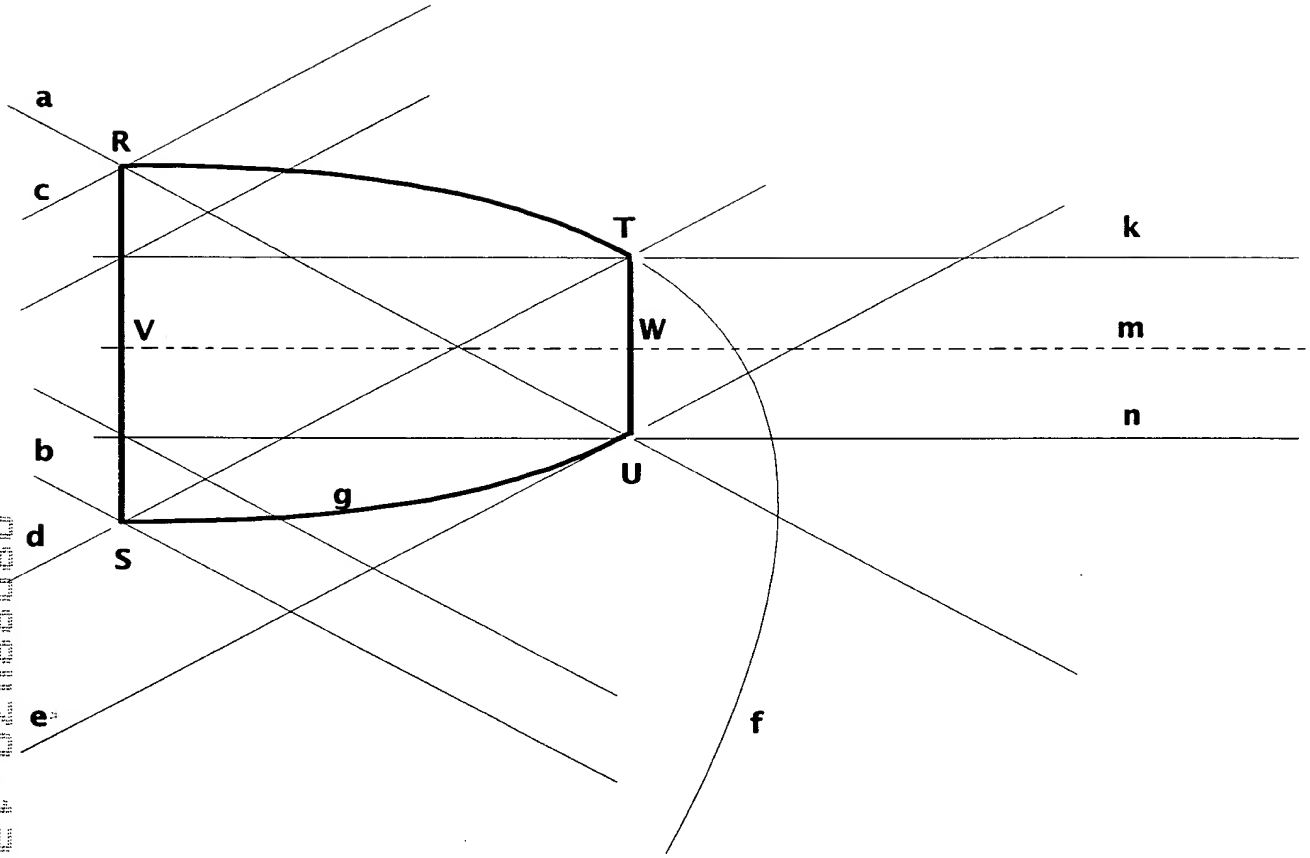


Figure 1A. Construction of a maximally-concentrating 2D CPC with input 2 mm high at 0.5 NA.

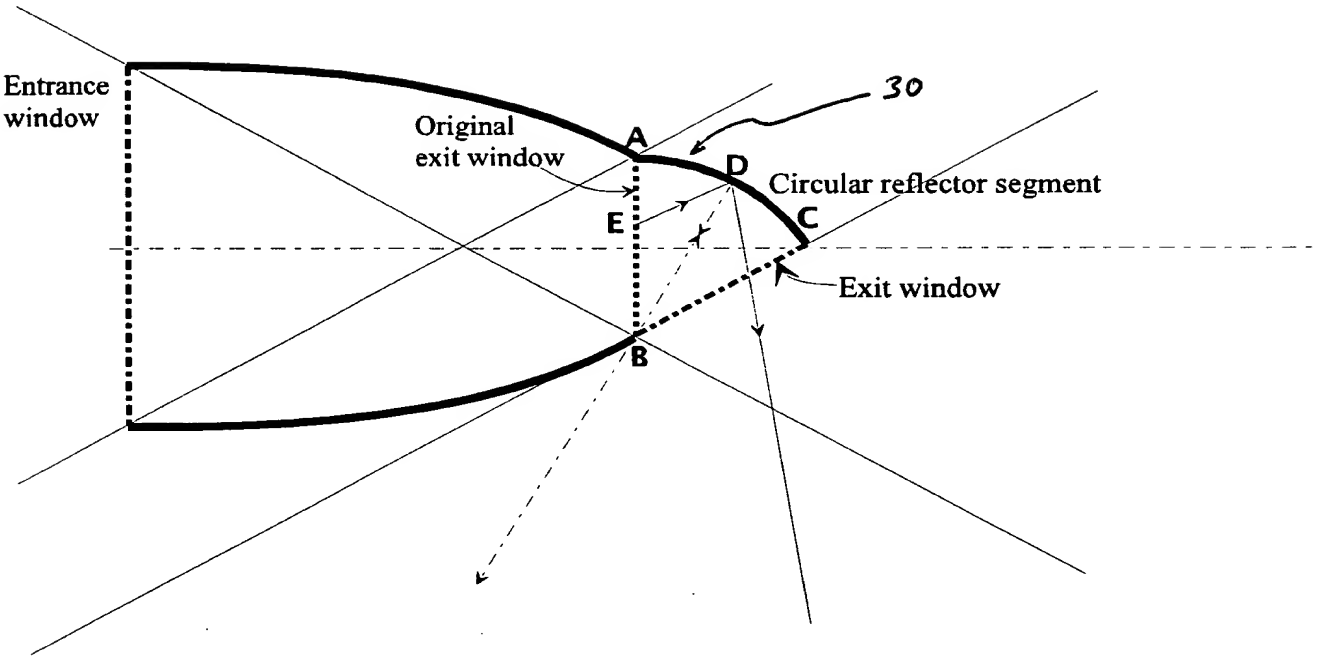


Figure 1B. A circular mirror segment rotates the output window of the CPC.

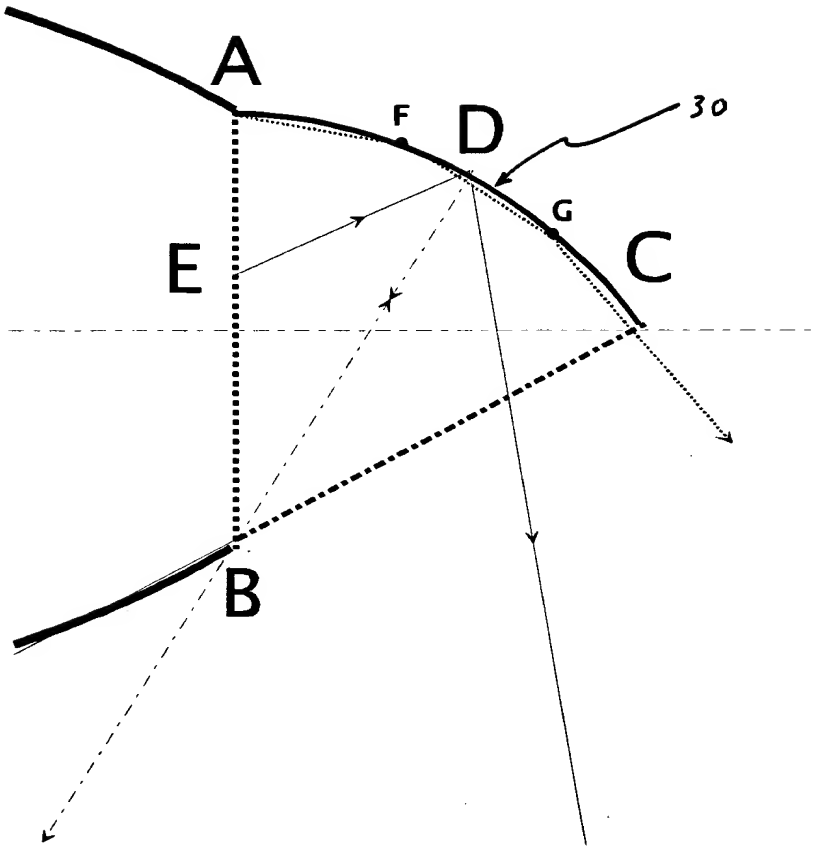


Figure 1C. Ray ED leaves the exit window on a single bounce. The shallow-angle ray from A requires two bounces, at points F and G.

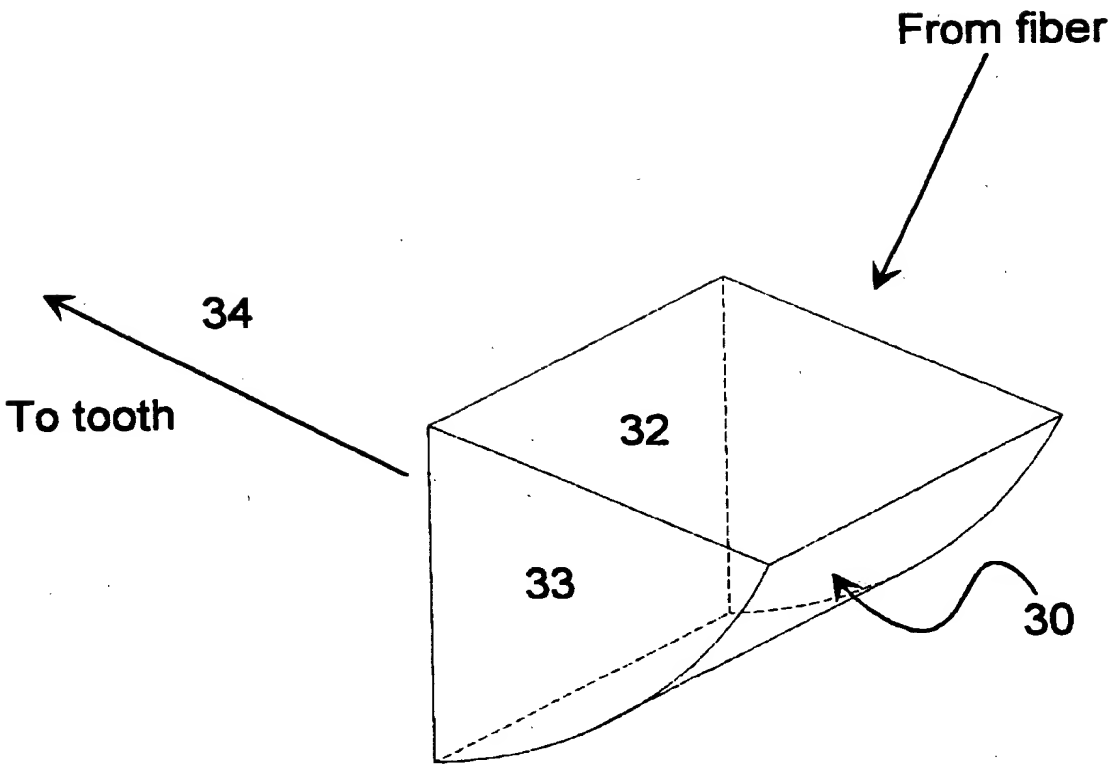


Fig. 1D: 3D view of a possible 2D application of the example device to the task of delivering light to a tooth.

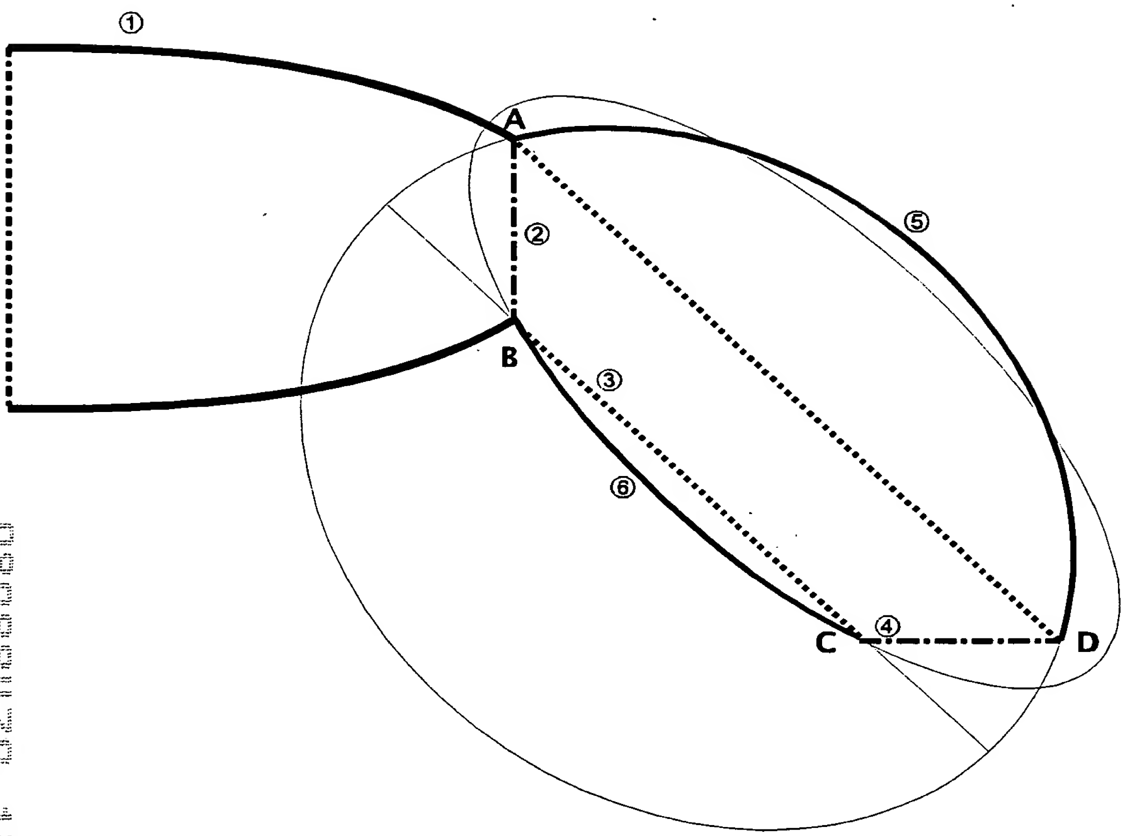


Figure 1E. Construction of a generalized 2D corner turner with NA = 1.

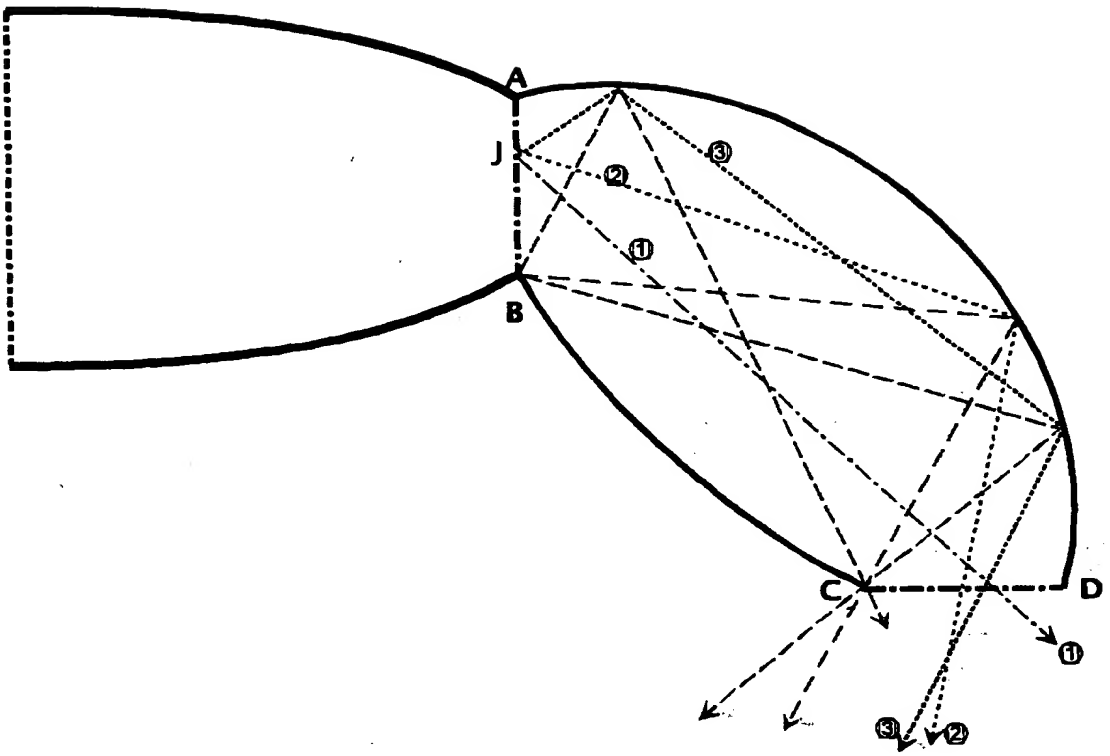


Figure 1F. Demonstration that all rays entering the corner turner will emerge at the exit.

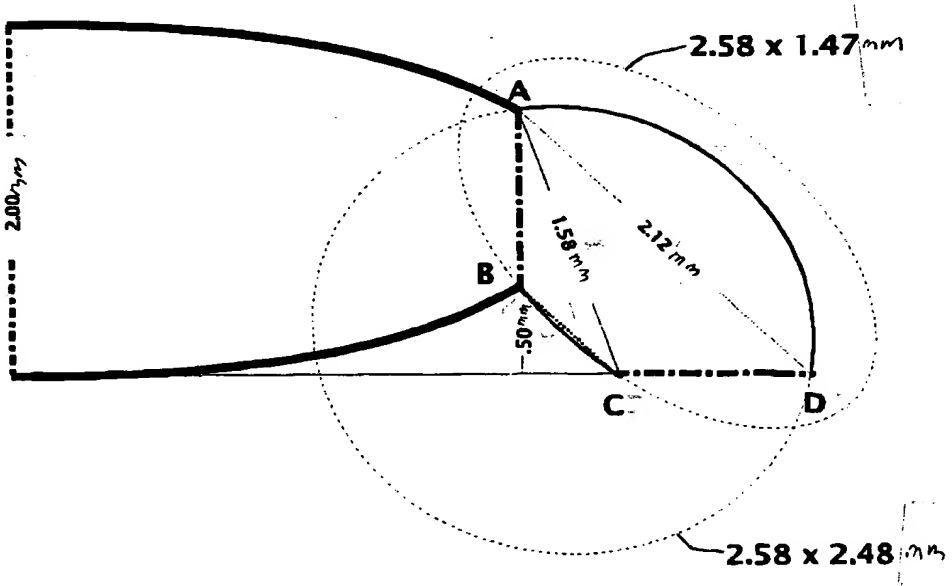


Figure 1G. Smallest 90° corner turner that clears the incoming CPC.

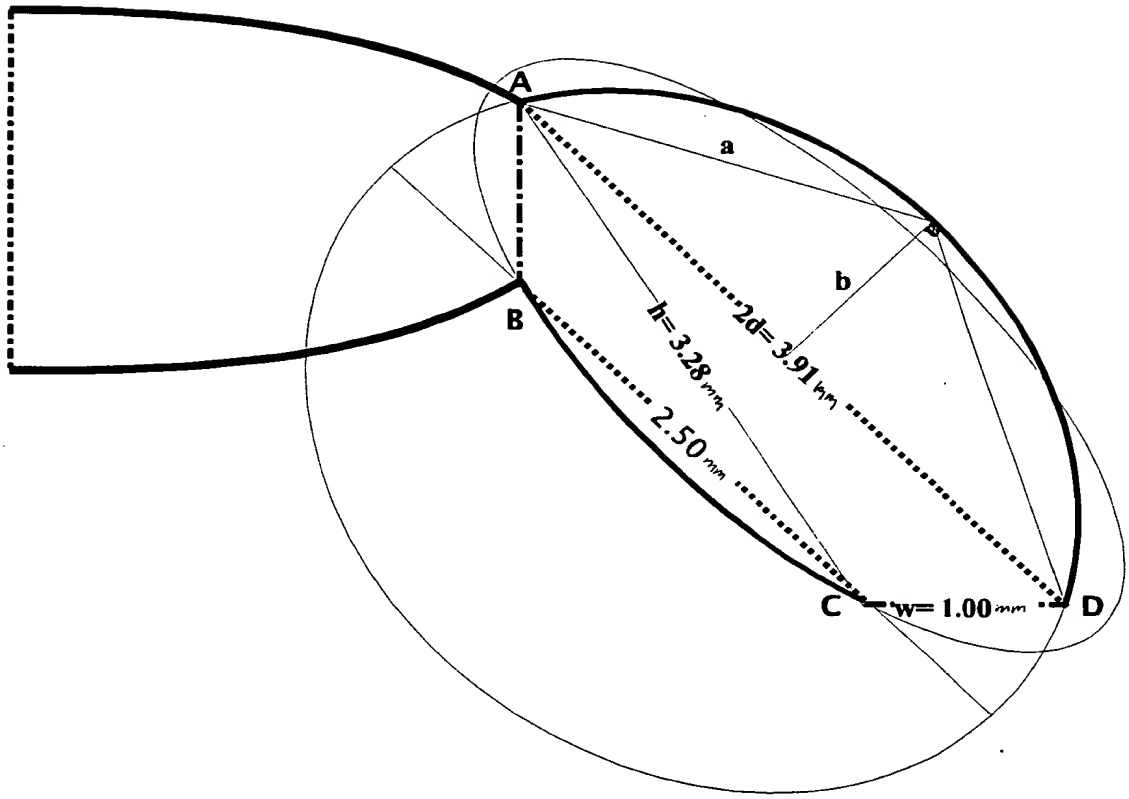


Figure 1H. How the upper ellipse is constructed.

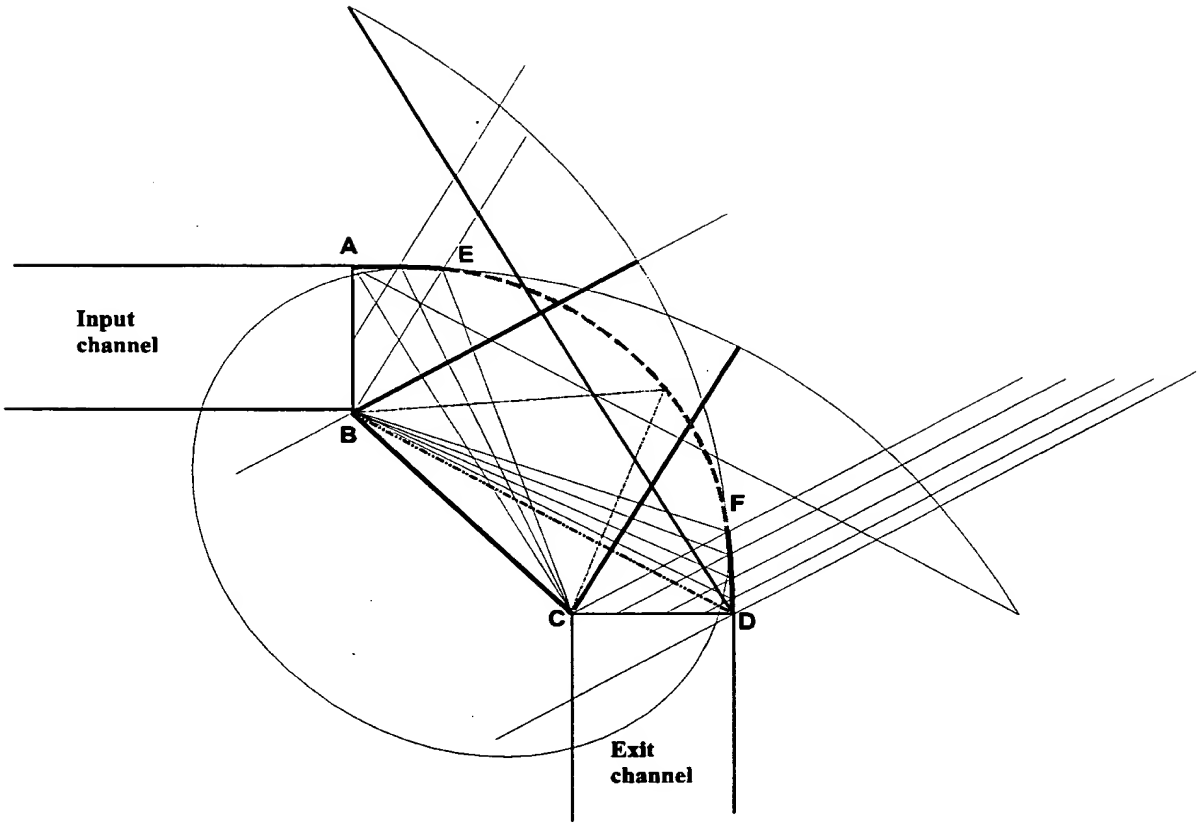
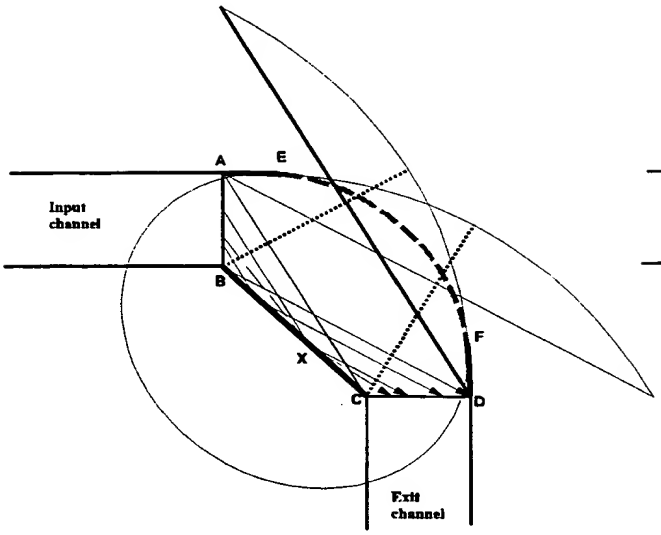
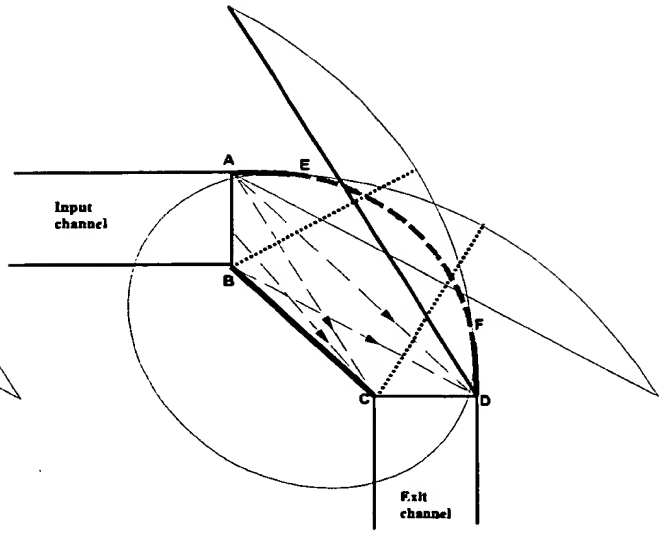


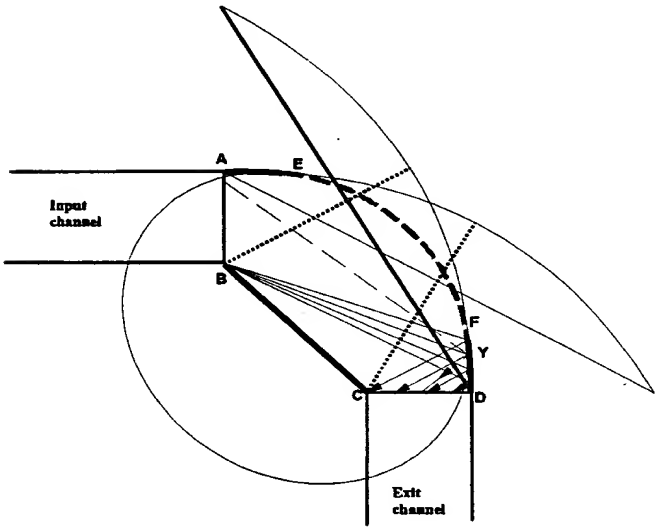
Figure 1I. 90° corner turner with $\phi = 60°$



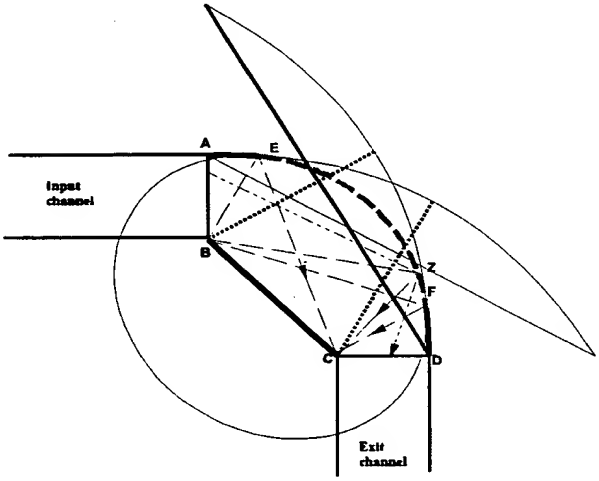
A. Rays which strike planar surface BC.



B. Direct rays from entrance to exit.

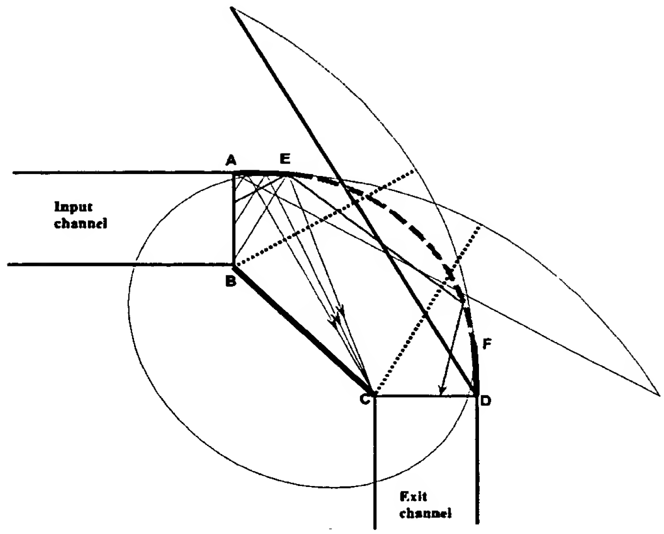


C. Rays which strike parabolic segment FD.



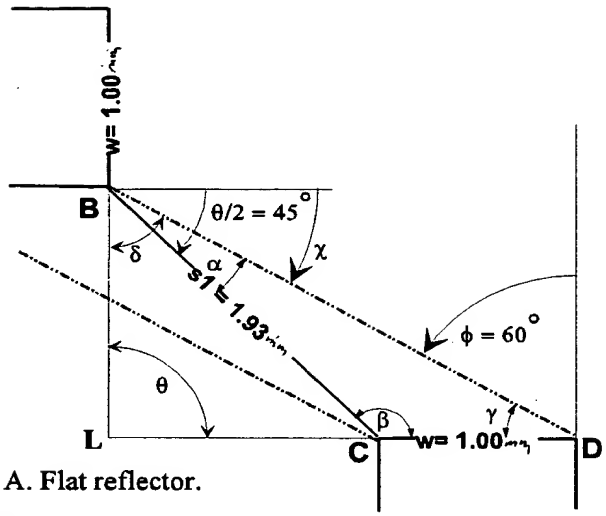
D. Rays which strike elliptical segment EF.

Figure 1J. Tracings of several categories of rays (figure is continued on next page).

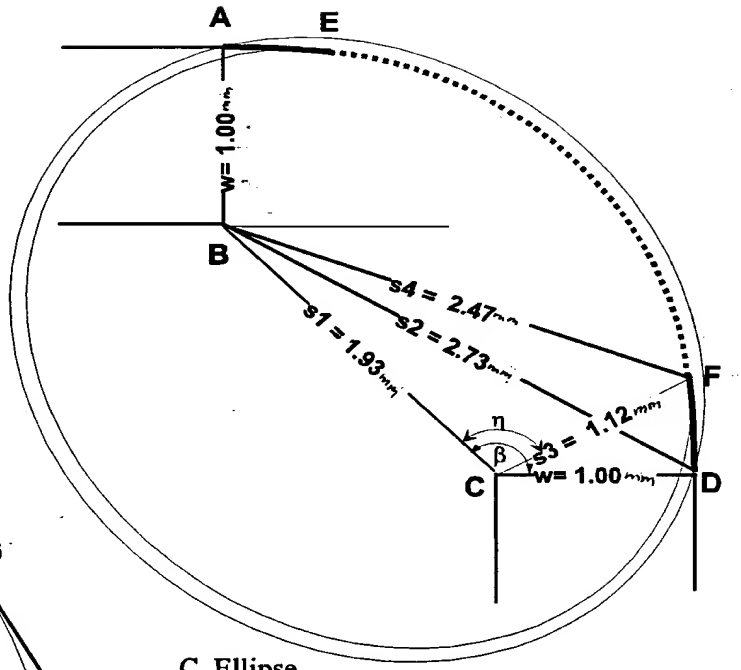


E. Rays which strike parabolic segment AE.

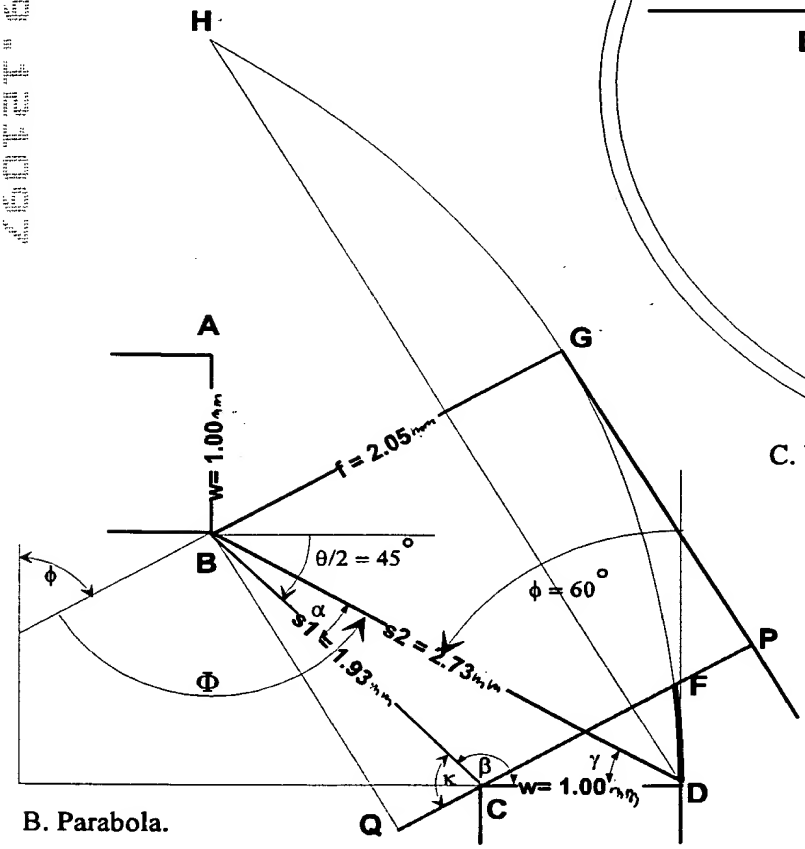
Figure 1J (continued).



A. Flat reflector.



C. Ellipse.



B. Parabola.

Figure 2. Construction steps.

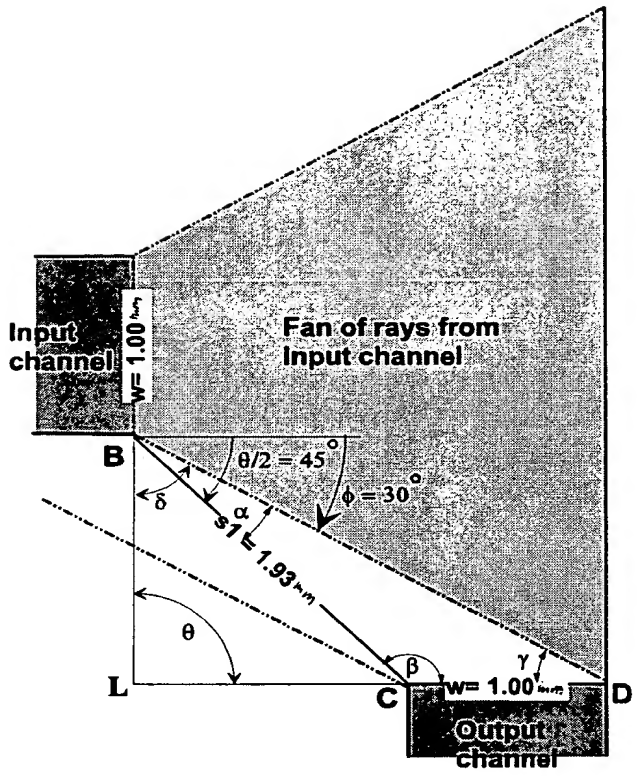
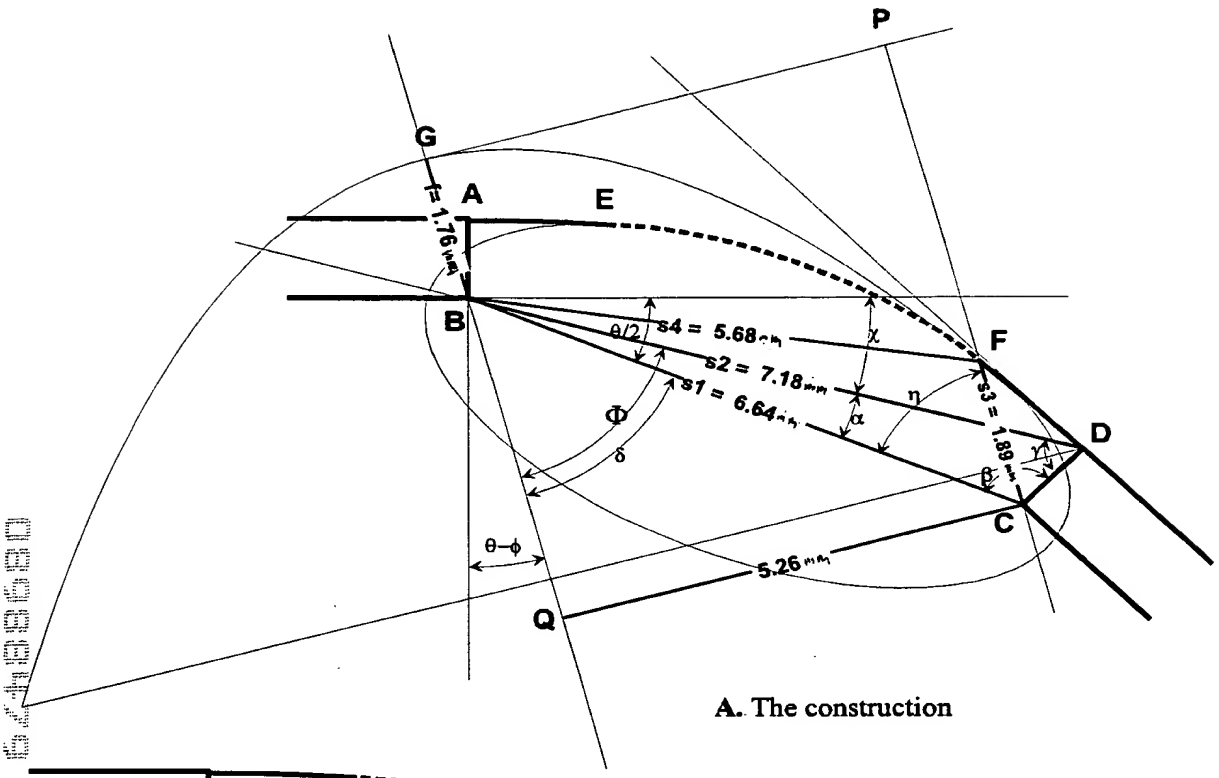
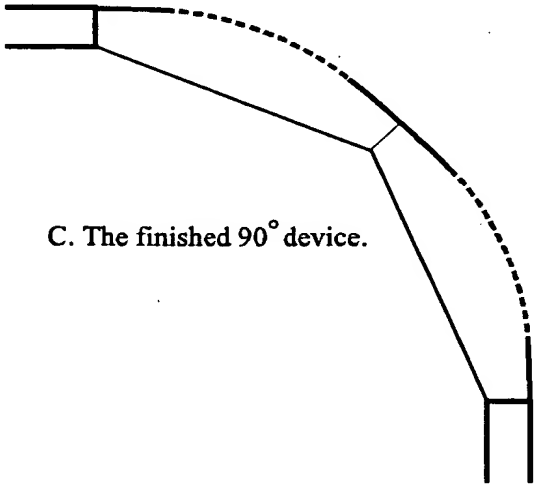


Figure 2D. Geometric constraint for the small-NA case, if solution is to be single-step.



A. The construction

B. The finished 45° device



C. The finished 90° device.

Figure 3. Construction of a non-imaging corner turner with $\phi = 30°$ and $\theta = 90°$, by combining two 45° corner turners.

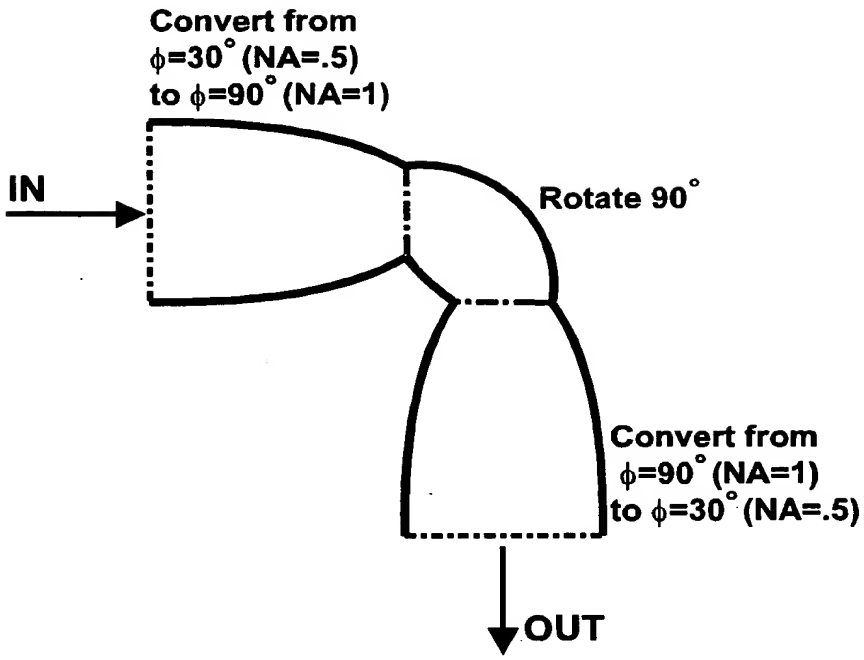


Figure 4. 90 degree corner turner for $\phi = 30°$.

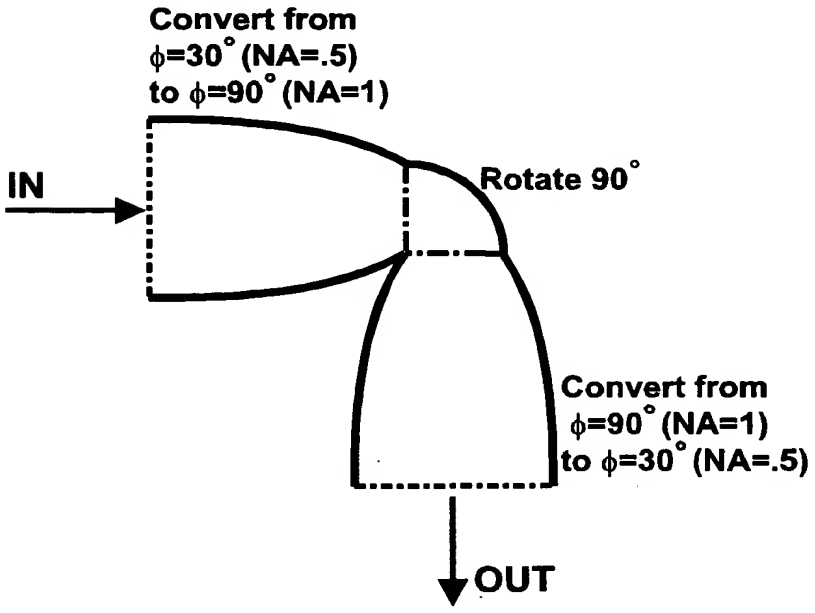


Figure 4A. Compact 90 degree corner turner for $\phi = 30°$

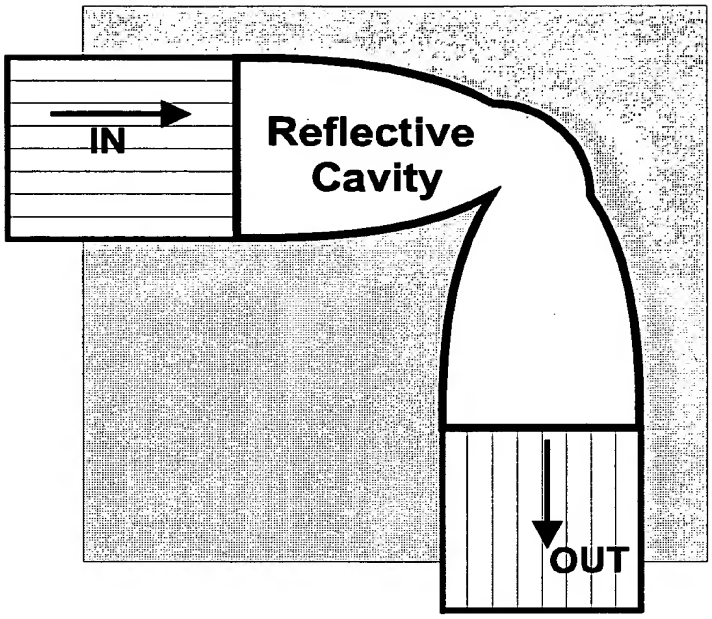


Figure 4B. Use of the design of Fig. 4A to join two fiber bundles.

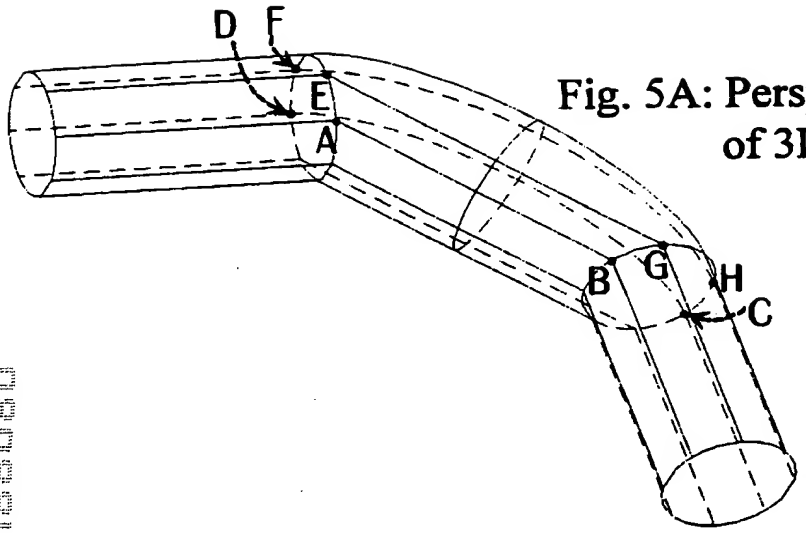


Fig. 5A: Perspective view of 3D corner turner.

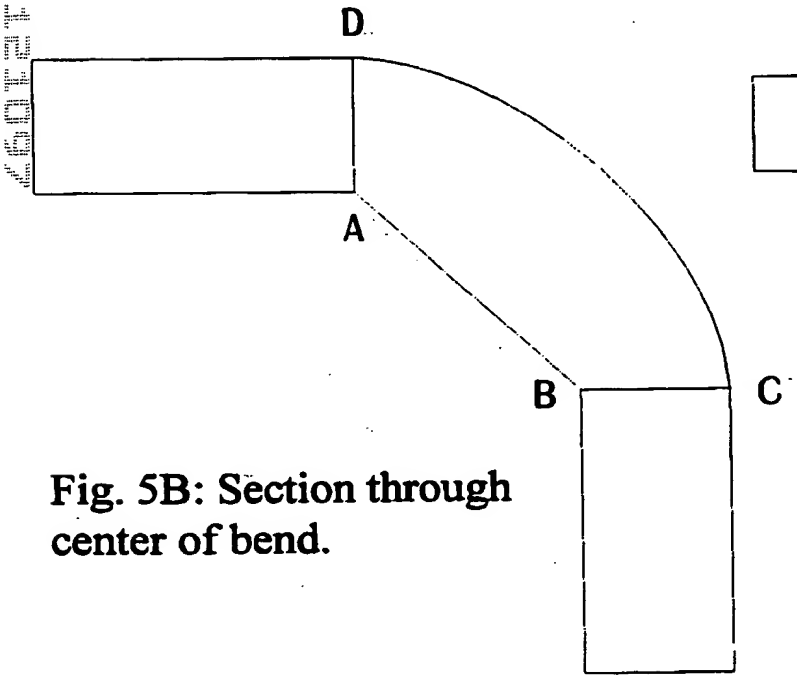


Fig. 5B: Section through center of bend.

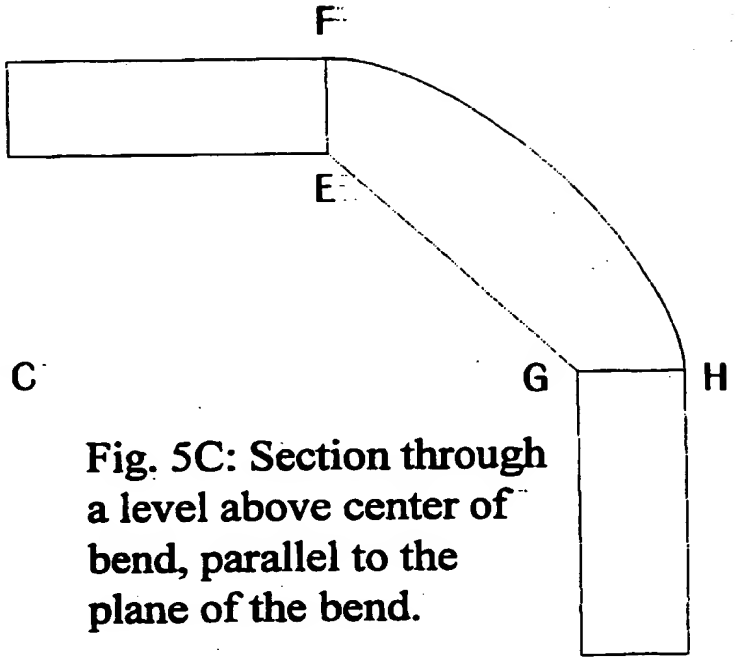
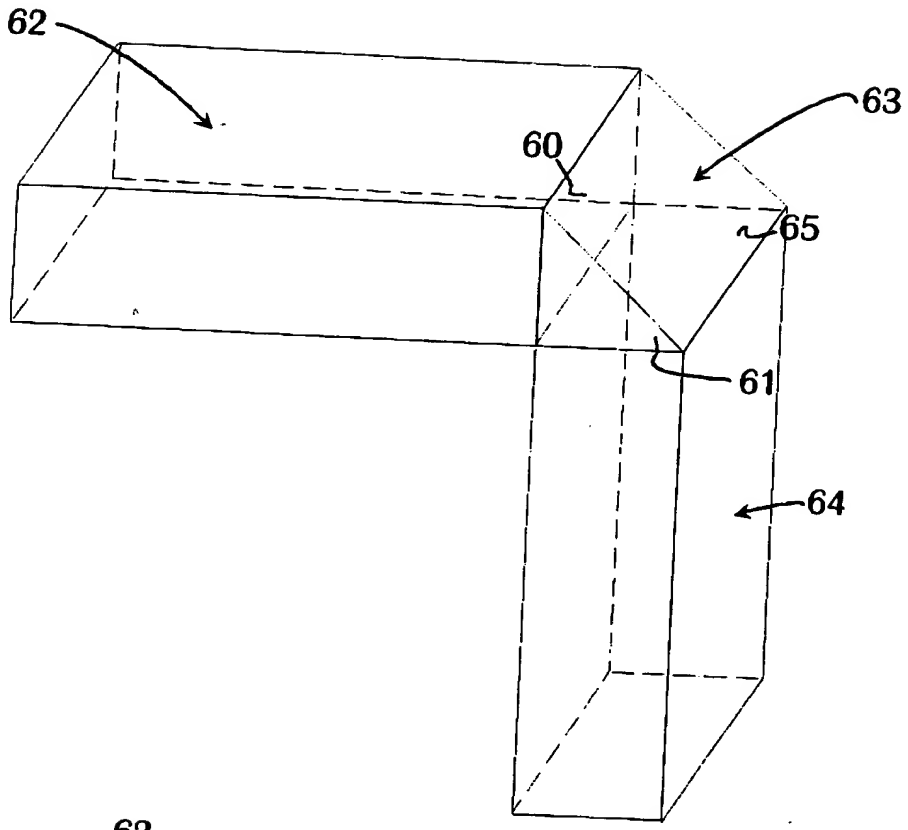
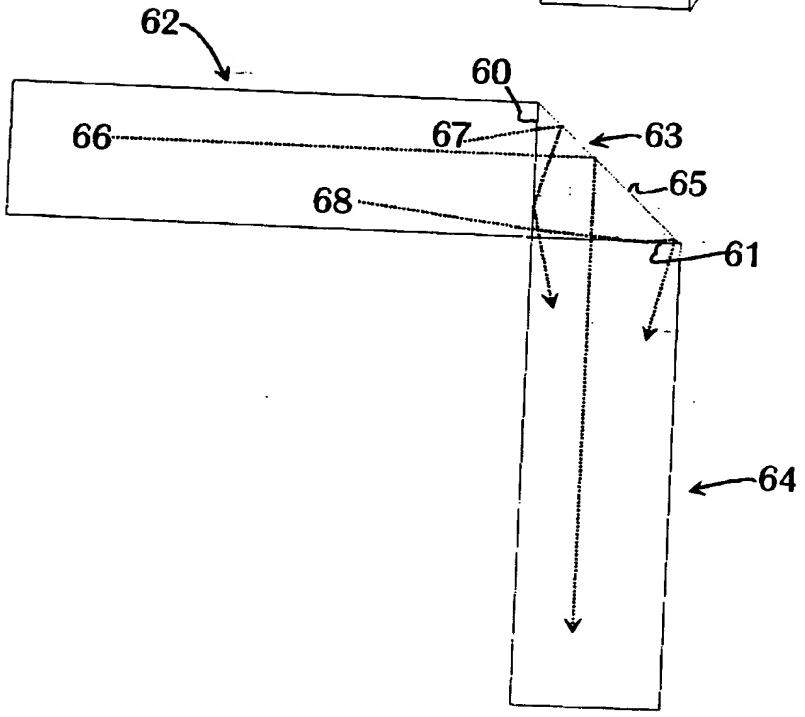


Fig. 5C: Section through a level above center of bend, parallel to the plane of the bend.

Fig. 5: 3D embodiment analogous to device of Figs. 1I, 1J, and 2.



6A. Perspective view



6B. Cross-sectional view.

Figure 6. Corner turner using special interface properties.